Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914 736-8001

NewYorkPower Authority

William A. Josiger
Resident Manager

January 21, 1993
IP3-NRC-92-044

Docket No. 50-286
License No. DPR-64

Mr. Thomas T. Martin, Regional Administrator
Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

Dear Mr. Martin:

Subject: ***Code of Federal Regulations 10CFR50.59***
Changes, Tests and Experiments

This letter and Attachment I constitute the 1991 Annual Report for the period January 23, 1991 to January 22, 1992 for changes, tests and experiments for the Indian Point #3 Nuclear Power Plant as required by 10CFR50.59.

The Authority has reviewed each change, test or experiment to ensure that the probability of occurrence, or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report has not been increased; the possibility of an accident or malfunction of a different type than any evaluated previously in the safety analysis report has not been created; and the margin of safety as defined in the basis for any technical specification has not been reduced. It was concluded that these changes, tests and experiments do not constitute any unreviewed safety questions.

250122

Should you or any of your staff have questions concerning this matter, please contact Mr. Michael Peckham, General Manager Operations at (914) 736-8041.

Sincerely,

William A. Josiger
Resident Manager
Indian Point #3 Nuclear Power Plant

WAJ/mls

Enclosure: Attachment I

cc: U.S. Nuclear Regulatory Commission
Documents Control Desk
Mail Station PI-137
Washington, D.C. 20555

IP3 Resident Inspector's Office
IP3 Record Center

NSE 87-03-188 SIS, REV. 1

BORON INJECTION TANK ISOLATION VALVE STROKE TIME INCREASE

Description and Purpose

This safety evaluation examined the non-LOCA and the LOCA impact of a delay from 10 seconds to 11 seconds in the design response (stroke times) of the Boron Injection Tank (BIT) isolation valves. Maintenance to the BIT inlet and outlet isolation valves resulted in a slight increase in the stroke time from 10 to 11 seconds for these valves.

Summary of Safety Evaluation

The only non-LOCA transients potentially impacted by the increase in the BIT valves' design stroke time are steamline break transients. Both the Steamline Break-core Response and the Steamline Break Mass and Energy Releases Inside Containment Analysis assumed 12 seconds for the BIT isolation valves to open. An increase in the stroke time from 10 to 11 seconds was within the assumptions of the analyses. Therefore, there was no impact on the Steamline Break Mass and Energy Inside Containment Analysis. The conclusions presented in the non-LOCA sections of the Indian Point Unit #3 Feasibility Report for BIT elimination remained valid.

The effect on the results of the LOCA related FSAR analyses for each of the accidents in the scope was evaluated and in all cases, it was determined that the effect of the stroke time increase would not result in any design or regulatory limit being exceeded. It was concluded that the increased stroke time for the BIT inlet and outlet isolation valves is acceptable in terms of the FSAR accident analyses addressed by this safety evaluation.

MOD 87-03-209 EL, REV. 0

CONDENSATE POLISHER 6-9KV BREAKER TRIP ALARM AT CCR

Description and Purpose

This modification provided Condensate Polisher 6.9KV breaker trip alarms in the Central Control Room (CCR). The alarms provided were, (1) incoming breaker to 6.9KV switchgear 3NBY01, (2) feeder breaker for load center 3NGY01, (3) Condensate Booster Pumps A, B, and C. New timing and latching relays were installed at the condensate booster pump breaker 6.9 KV switchgear in the Auxiliary Boiler Annex Building.

Summary of Safety Evaluation

The new control switches were the same type and were installed in the same location as the existing switches. The existing switch control circuit functions were not changed. This modification complied with the IP#3 Fire Protection Program. The penetrations between adjacent fire zones were resealed after the installation of the cables. This modification did not affect the safety analysis of the FSAR.

The Condensate Booster Pump breaker control switches (CAT I) in the CCR were replaced with an identical type of switch with additional contacts for the alarm circuits. New control cable was installed as per separation criteria referenced in Codes and Standards. The new cables utilized existing penetrations in the Control Room floor and the control building wall.

MOD 88-03-035 SIS, REV. 0

HIGH STEAM FLOW SAFETY INJECTION TIME DELAY

Description and Purpose

The purpose of this modification was to reduce the number of inadvertent Safety Injection (SI) actuations due to instrumentation lags in the Engineered Safeguards System high steamline flow and low average temperature/low steamline pressure coincidence circuitry. Actuation of the high steam flow SI actuator can be delayed for up to six seconds to compensate for lags in instrumentation by delaying the circuit output, thus reducing inadvertent engineered safeguards actuation.

Summary of Safety Evaluation

The analysis performed for this modification demonstrated that containment pressure would not exceed 33.61 psig which is within the bounds of the limiting containment pressure of 42.42 psig stated in the Technical Specifications. For a Main Steam Line Break accident, real containment pressure would not increase above previously analyzed conditions. This modification did not increase the probability of occurrence or consequences of an accident previously evaluated in the FSAR. This modification actually reduced challenges to the plant safety systems. Technical Specification change was submitted to the NRC.

MOD 88-03-042 MTG, REV. 0

TURBINE SUPERVISORY INSTRUMENTATION (TSI) SYSTEM UPGRADE

Description and Purpose

This modification replaced the Westinghouse Turbine Supervisory Instrumentation (TSI) System with a new Bently Nevada TSI System. This required the replacement of instrumentation installed on the Main Turbine/Generator and the two Main Boiler Feedwater Pumps (MBFP), the associated monitors and display equipment in the Central Control Room (CCR).

Summary of Safety Evaluation

The cabinet housing the vibration monitoring equipment that was originally designed to ASME Seismic Class II requirements has been altered to meet new logic and interface requirements. A new room was constructed. The cabinet was installed in this separate room in the turbine building and is not subject to any adverse systems interactions with any safety related equipment under postulated seismic events. Equipment installed on Panel SEF was seismically supported to preclude interaction with safety related equipment during a seismic event.

The loading of Instrument Bus 31 was not changed since the new Bently Nevada TSI equipment is rated the same as the Westinghouse TSI System.

The room in which the panel was installed has fire detection and a hand fire extinguisher and was built using fire retardant materials and design as to prevent the spread of fire; no new fire hazards are created.

CLAS 89-03-011 EDG, REV. 2

EMERGENCY DIESEL GENERATORS STARTING AIR COMPRESSORS

Description and Purpose

The purpose of this reclassification was to change the Emergency Diesel Generator (EDG) starting air compressors, including associated compressor motor and electrical power feeds, from Category I to M. The EDG starting air compressors are an auxiliary subsystem to the EDG's.

Summary of Safety Evaluation

The loss of any or all of the compressors does not make its respective EDG functionally inoperable since each air start system has an accumulator with sufficient capacity for four starts, and the three independent starting air systems can be manually connected. This results in the ability to maintain accumulator pressure as required.

Therefore, the failure of an EDG starting air compressor does not prevent the EDG from performing its safety function. In summary, the EDG starting air compressors do not perform a direct safety function, allowing them to be reclassified to the Category M requirements of the Quality Assurance Program.

CLAS 89-03-027 MULT, REV. 3

LIMITORQUE MOTOR OPERATORS

Description and Purpose

This reclassification identified those components of Category I Limitorque motorized valve operators that are non-critical and classified those as Category M. Many parts in Limitorque operators would not prevent valve function in the event of the component failure. As Category M, those items can be procured in accordance with Limitorque's Quality Assurance program for commercial grade items.

Summary of Safety Evaluation

This evaluation identified as critical components, those which were stressed during motor drive closing or opening of the valve, preceded by an automatic movement of the clutch mechanism from the manual to motor drive mode. All components involved in handwheel operation of the actuator, or those serving as dust covers were not considered critical to the actuator's safety function (i.e., motor operation). The "O" rings sealing the mating flange at the main housing penetration to the switch compartment for both the geared limit switch and torque switch, and the Viton "O" rings internal to these two switches insure lubricant does not penetrate the electrical compartment and possibly contribute to a contact malfunction. All other "O" rings and gaskets in external main housing penetrations are not critical to function or maintaining environmental qualifications. Even catastrophic degradation of either of these "O" rings or gaskets would not present sufficient lubricant leakage to prevent the actuator safety function.

MOD 89-03-223 MS, REV. O

HIGH PRESSURE STEAM DUMP VALVES REPLACEMENT

Description and Purpose

This modification replaced 12 high pressure steam dump valves with new units superior in design and material to prevent valve body distortion and resultant seat leakage.

Summary of Safety Evaluation

The new valves are forged carbon steel (A105) which is structurally better than the cast material (A216WCB) of the replaced valves. The new valves also have improved valve trim design which helps preclude valve seat leakage.

This has no impact on, nor is it located near, any safety related equipment, and, therefore, did not affect the safety analysis of the FSAR. The installation was Non-Category I with no seismic consideration involved.

CLAS 90-03-191 CVCS, REV. 1

CHARGING PUMP O-RINGS AND GASKETS

Description and Purpose

This classification identified the O-rings and gaskets associated with the Chemical and Volume Control Charging pumps and charging pump fluid drives as Category M.

Summary of Safety Evaluation

The O-rings and gaskets associated with the charging pumps and their fluid drive do not have any affect on the operability of the pumps nor do they contribute to the safety function of the pumps. If these components failed, there would be no affect on pump integrity or operability and are therefore, not considered critical components.

In summary, the gaskets and O-rings covered by this classification perform no safety function, which allows them to be reclassified to the Category M requirements of the Quality Assurance Program.

MMP 90-03-238 FP, REV. 0

LP TURBINE FIRE PROTECTION

Description and Purpose

Prior to new ASEA Brown Boveri (ABB) low pressure turbine installations, turbine bearings 3 through 8 fire protection consisted of water spray and carbon dioxide systems. There were two water spray nozzles, one per side, two CO_2 discharge heads and CO_2 heat detectors, at each bearing, and two sprinkler heads below the platform.

The ABB turbine design introduced new reinforcing brackets at each turbine bearing to minimize their vibration. It was concluded that these brackets would interfere with the discharge pattern from the existing water nozzles.

This modification involved the installation of two additional nozzles, installed at the opposite side of the bracket. These nozzles restore water suppression capability at each hearing.

Following NYPA re-analysis of hydraulic calculations, header size to nozzle was enlarged in some instances to provide additional water spray capacity.

A quick disconnect CO_2 heat detector conduit scheme was introduced to prevent repetitive conduit and detector damage during each turbine service cycle.

Summary of Safety Evaluation

Based on the bracket location, it was established that there is no appreciable effect on local application of CO_2. New CO_2 heat detectors of the same type as the originals restore the CO_2 heat detection system. Seismic criteria were considered for this modification, per FSAR Section 16.1 and Att. 3.

This improved the LP turbine fire protection system, did not affect any safety related or environmentally qualified components or systems, nor did it affect overall plant safety.

CLAS 90-03-283 MTG, REV. 0

TURBINE CONTROL OIL AUTO STOP TRIP PRESSURE SWITCHES

Description and Purpose

This established the QA classification for the main turbine generator pressure switches. These pressure switches provide a direct reactor trip based on the detection of low auto stop oil pressure. A turbine trip causes a direct reactor trip on low auto stop oil pressure when operating at or above 10% power.

Summary of Safety Evaluation

These pressure switches provide an input to the reactor trip logic and an annunciator indication on the flight panel. A reactor trip directly from turbine trip signal is assumed not to occur in the FSAR accident analysis and reactor protection is provided by the high pressurizer pressure function for this event. As a conservative measure Technical Specification requires surveillance and provides operability requirements for this system. Additionally, the annunciator supports turbine indication to the Control Room operator. Since a reactor trip on a turbine trip is not required and no other safety area is effected, the switches are not required to be Cat. I. Since they provide indication to the operators and provide for meeting Technical Specification requirements, they are being classified as Cat. M.

CLAS 91-03-008 MTG, REV. 0

TURBINE THRUST BEARING PRESSURE SWITCHES

Description and Purpose

This classification established the QA classification for the subject main turbine generator pressure switches. These switches provide a turbine trip based on the detection of thrust bearing wear.

Summary of Safety Evaluation

The failure of these components does not create the possibility of an accident or malfunction evaluated in the FSAR. Therefore, these switches can be classified as Non-Category I.

NSE 91-03-030 CVCS, REV. 0

REACTOR COOLANT PUMP (RCP) #1 SEAL DIFFERENTIAL PRESSURE TEST

Description and Purpose

This test was performed to measure differential pressure across the RCP seals for historical data collection. The method used was to temporarily remove the existing differential pressure transmitters, and replace them with individual pressure gauges placed on each pressure tap. This process was conducted for one RCP at a time. The high pressure gauges read the seal bypass flow pressure, while the low pressure gauge indicates the seal leakoff pressure. Both pressures profile the conditions at the seal. The low pressure gauge possesses a range of 0 to 300 psig, since the seal leakoff is at a relatively low pressure. The high pressure gauge is from 0 to 3000 psig to encompass the maximum pressure possible in the bypass line, which is Reactor Coolant pressure ($\approx$2235 psig). This safety evaluation was written to confirm safe performance of test ENG-446.

Summary of Safety Evaluation

The safety evaluation ensured that ENG-446 would not constitute a challenge to any safety systems and no reactor trip or safeguards system actuation would occur as a result of the test. Additionally, it was noted that a hypothetical total failure of the seal package is enveloped by the FSAR accident analysis of the RCS pressure boundary. Performance of the test in no way interfered with continued safe operation of the plant.

This safety evaluation documented that no unreviewed safety questions were created during the performance of test ENG-446, "#31 - #34 Seal Delta P Data Acquisition," when the reactor is critical. The evaluation involved the examination of the test with respect to the materials and procedures employed specifically in their potential effects on plant and personnel safety.

CLAS 91-03-047 FW, REV. 0

MBFP DISCHARGE CHECK VALVES BFD-1-1 AND BFD-1-2

(Valve Bodies, Bonnets and Internals)

Description and Purpose

The main boiler feedwater pump discharge check valves BFD-1-31 and BFD-1-32 were classified as safety related QA Category I items in the Master Equipment List. Based on reviews of the FSAR, plant Technical Specifications, the Emergency Operating Procedures, and other design documents, this classification was not justified. The subject check valves were reclassified to Non-Category I status which is commensurate with their non-safety related function.

Summary of Safety Evaluation

Evaluations of the FSAR, Technical Specifications, EOP's, and Classifications 89-03-099 FW and 90-03-222 FW, indicated that no justification exists for the MBFP discharge check valves QA Category I classification in the M.E.L. No credit is assumed for these valves functionality in any accident scenario. The valves are located in a Seismic Class III section of the Main Feedwater System hence, they are not designed to survive the Design Basis Seismic Event. All subcomponents of the check valves, including the body, bonnet plate, bolting and internals, were therefore classified Non-Category I.

CLAS 91-03-049 EX, REV. 0

EXTRACTION STEAM AIR OPERATED NON-RETURN CHECK VALVES

Description and Purpose

This classification provided new Quality Assurance Category designations for ten valves in the Extraction Steam System. The Master Equipment List (M.E.L.) classified these valves Category I. The specific valves are the air operated non-return check valves in the extraction steam lines from the main turbine; (valves 3EX-2, 3EX-4, 3EX-6, 4EX-2, 4EX-4, 4EX-6, 5EX-3, 5EX-4, 6EX-3, and 6EX-4). These valves have been reclassified Non-Category I.

Summary of Safety Evaluation

FSAR Section 14A and the Asea Brown Boveri (ABB) turbine overspeed analysis report were evaluated in detail and found not to make any mention of the valves or of potential consequences of their failure. On the other hand, FSAR Section 10.2 inferred that check valve failures could increase the probability of turbine overspeed occurrence. However, utilizing Westinghouse data (WCAP-11525 and Letter INT-88-689) and a re-evaluation of the turbine failure probability analyses (FSAR Section 14A and ABB report), the conclusion was drawn that, from a probabilistic standpoint, turbine design overspeed (as well as normal operating rotational speed) is not a valid initiator of safety system damage. Therefore, no impact on safety will be created by check valve failure because the probability of turbine overspeed generating core damaging missiles is below the 10CFR100 criterion for a credible accident. Their function is not safety related and therefore they were reclassified as Non-Category I.

NSE 91-03-057 HR, REV. 0

MANUAL OPERATION OF THE HYDROGEN RECOMBINERS

Description and Purpose

This evaluation addressed the manual operation of the hydrogen recombiners in the event that the automatic functions are not operable.

The recombiners are capable of fully automatic operation once the flame start is initiated. The recombiner also has various design features that enable some automatic functions to be performed manually.

If the recombiner is needed and certain automatic functions are not operable, the operator stationed at the recombiner control cabinets can perform those functions manually. This will maintain containment hydrogen at a safe level during a loss of coolant accident.

Summary of Safety Evaluation

The FSAR does not specifically advocate the manual operation of the Hydrogen Recombiners nor does it bar manual operation. It does state that there are certain conditions under which the flame failure system will automatically shut off hydrogen flow, (Section 6.8.3.A). These conditions are high combuster temperature above 1525°F, failure to reach 450°F in one minute and failure to stay within 200°F below the setpoint in three minutes. These automatic functions can all be performed manually. If the recombiner is required and some of these automatic functions are not available, manual operation could be utilized to maintain the hydrogen concentration in containment to a safe level.

NSE 91-03-091 IVSWS, REV. 0

OPERATION WITH RADIOACTIVE CONTAMINATION IN THE ISOLATION VALVE SEAL WATER SYSTEM (IVSWS)

Description and Purpose

This safety evaluation addressed the continued operation of the unit with the IVSWS system contaminated.

It was determined that during the course of plant heatup and cooldown, cross contamination of the IVSWS System is likely to occur due to some degree of back leakage through the RCS sample line IVSWS check valves. During plant evolutions where the RCS pressure is low, a leak rate of approximately 60 cc/hr. can be expected to enter the IVSWS System and be released through steam generator blowdown. This leakage is not abnormal and is within normal specification for check valve backseat leakage.

Summary of Safety Evaluation

Based upon a review of the regulation it has been determined that the IVSWS system contamination is acceptable. The check valve leakage is contained within the radioactive waste systems and does not constitute an unmonitored or uncontrolled release pathway during normal operation. However, during plant heat up and cooldown and RCS temperature <366°F a potential for release through steam generator blowdown downstream of the installed radiation monitor exists. Administrative controls are in place to preclude an unmonitored release during these conditions.

CLAS 91-03-094 RCC, REV. 0

THE ROD POSITION INDICATOR PULSE TO ANALOG CONVERTER CIRCUITS INCLUDING THE BANK BISTABLE BYPASS MODULES

Description and Purpose

The purpose of this classification was to reclassify the Rod Position Indicator Pulse to Analog (P/A) Converter Circuits and the Bank Bistable Bypass Modules from Category I to Category M.

Summary of Safety Evaluation

Each P/A converter circuit monitors a separate control bank and converts the up and down step signals to an equivalent DC signal. The DC signal is sent to the control bank bottom bypass bistable (banks B, C, and D) and the Rod Insertion Limit computer.

The function of the bistable is to block a turbine run back signal and allow automatic rod withdrawal when rods of the associated bank are operated at or below the rod bottom bistable setpoint. The accident analysis of the FSAR does not assume a turbine runback from a dropped rod for reactor protection. Therefore, the function of the bistable is not needed for the safe operation of the plant.

The P/A converter circuits do provide information that helps verify the limits in Technical Specifications are met. This is a Category M function as described in MCM-6B, Attachment 4.3 Code M10(b), which requires that certain indicators to the operators must have a QA program as previously committed to the NRC.

CLAS 91-03-137 MTG, REV. 0

INDEPENDENT ELECTRICAL OVERSPEED PROTECTION SYSTEM (IEOPS)

Description and Purpose

This classification determined the category and boundaries of the Independent Electrical Overspeed Protection System (IEOPS) for the Main Turbine Generator.

The IEOPS is not relied on in the plant safety analyses. The failure of IEOPS to trip the turbine on overspeed does not degrade the missile protection probability below its acceptable level. The technical evaluation was submitted to the NRC and the resultant Technical Specification amendment deleted the IEOP's. On this basis all IEOPS can be considered Non-Category I.

Summary of Safety Evaluation

The failure of IEOPS does not prohibit or degrade any reactor trip and will not degrade the safety of the plant if it fails. A Technical Specification amendment has been issued to delete the IEOP's from the Technical Specifications.

NSE 91-03-166 EXCOR, REV. 0

RESET POINTS FOR INTERMEDIATE RANGE TRIP AND ROD STOP BISTABLES

Description and Purpose

This safety evaluation addressed raising the reset points for the Intermediate Range reactor trip and rod stop bistables. It was determined that the reactor trip bistables on the Intermediate Range (IR) nuclear instrumentation might not reset before P-10 permissive reset actuated. Research determined that the IR reset points, 13% and 10% for reactor trip and rod stop bistables, respectively, were too close to the P-10 reset point (approximately 8% power). With the implementation of advanced core design, the IR currents increase as the core depletes. This effectively lowers the power level at which the IR bistables actuate, and narrows the already small band between the IR and P-10 reset points. In order to ensure that core redistribution does not result in a reactor trip due to the effective decrease in IR setpoints throughout the cycle, the IR reset points were raised to a higher value.

Summary of Safety Evaluation

The NIS supplier, Westinghouse, was contacted and reported that several other plants have had similar problems with IR resets being too close to the P-10 reset point. These plants have also raised the IR reset points to correct the problem.

The IR reactor trip and rod stop functions are not required by Technical Specifications as they are not assumed to actuate during any design basis FSAR event. Raising the reset points for the IR trip and rod stop, therefore, has no impact on existing plant safety analyses. This change reduced the possibility of a reactor trip during plant shutdown due to the extra margin added between the IR and P-10 permissive resets.